Terminology

Chang Mo Moon

Key Points

- Standard terminology is essential for the exact communication of capsule endoscopic results and enhancement of clinical effectiveness.
- The capsule endoscopy report requires patient information and small bowel lesion data (patient data, date of capsule endoscopy, reason for examination, whether examination was complete or incomplete, complications, description of findings, and diagnosis).
- The final diagnosis of capsule endoscopy should be determined after a comprehensive review of the capsule endoscopy images and patient's clinical information.

Standard Terminology

Terms used for capsule endoscopy should be reproducible, so that even a doctor who has not seen the image can readily recognize the small bowel lesion features. Thus, the *Given Capsule Standard Working Group* led by Korman has organized and presented the *capsule endoscopy structured terminology (CEST)* in 2005 [1]. CEST was developed in accordance with the Minimal Standard Terminology guidelines [2].

Description

The report on capsule endoscopy must include patient data and description of the small bowel. Patient data includes patient information, date of examination, reason for examination, whether the examination was complete or incomplete, complications, lesion description, capsule endoscopic findings, and diagnosis (Table 1).

Descriptions

Lesions

CEST consists of clear, distinct, widespread, and common terms. First, the headings for the lesion data based on capsule endoscopy findings are selected. Headings include normal, lumen status, content in the lumen, and mucosa status. When the lesion is observed, it is classified as a flat, protruding, or excavated lesions [3]. The main categorization used for a small bowel lesion includes a presence of a normal lumen (such as presence of stenosis and dilatation), contents (such as blood and bile), mucosa (such as erythema, pale, and granular), flat lesions (such as spot, plaque, and angioectasia), protruding lesions (such as nodule, polyp, and mass), and excavated lesions

C. M. Moon (✉)
The Department of Internal Medicine, Ewha Womans University College of Medicine, Seoul, South Korea

H. J. Chun et al. (eds.), *Small Intestine Disease*, https://doi.org/10.1007/978-981-16-7239-2_18

Table 1 Structure of capsule endoscopy report

Data fields
Patient name
Date of birth
Sex
Patient ID
Date of examination
Capsule type
Capsule ID
Physician/provider
Patient history
Clinical indication
ICD indication
Extent of examination
Characteristics of examination
Complication
Findings
Diagnostic impression
Diagnostic ICD
Recommendation

ID identification, *ICD* international statistical classification of diseases and related health problems

(such as aphtha, erosion, and ulcer) [1, 4]. Detailed descriptions, which are added after these headings, include characteristics of the lesion such as its location, shape, and number. After the main categorization is done, the details are described in the order of heading-term-attribute-attribute value [1, 5].

Localization

Discovering the exact location of the lesion is essential for determining the exact location needing treatment. Thus, the location must be included in the capsule endoscopy report. Lesion location can be separated into three parts [5]. First, the small bowel should be divided into three sections (proximal, middle, and distal parts) based on the recording time of the lesion. Second, descriptions should be in the order of the esophagus, stomach, small bowel, and terminal ileum. In this situation, standard anatomical landmarks such as the Z line, pylorus, papilla, and ileocecal valve are used to categorize the location. The third option is included in the interpretation software by which the abdominal region is divided into four parts with the navel in the center (left upper, left lower, right upper, and right lower quadrant) or divided according to the time required to pass from the pyloric ring to ileocecal valve.

Small Bowel Preparation Quality

A description of the capsule endoscopy procedure itself includes the preparation methods and results, examination time, and final location examined. In particular, since there is no standardized bowel preparation method for capsule endoscopy, various suggestions have been proposed to determine how to conduct quantitative measurement for bowel preparation. For example, examiners measured the bowel preparation quality by inspecting the entire small bowel mucosa or inspecting several images at several recording time points. However, these measurement methods for bowel preparation have limitations in that they are subjective and not quantitative. Accordingly, methods for increasing objectivity and quantitative measurement have been proposed [3].

Diagnosis

The final diagnosis of capsule endoscopy should be decided based on the comprehensive review of capsule endoscopic images and patient's clinical information. CEST diagnosis is divided into major and minor diagnoses depending on the frequency of occurrence. The major diagnosis is categorized as normal, angioectasia, erosion, ulcer, Crohn's disease, celiac disease, NSAID-induced enteropathy, and tumor (benign or malignant) (Table 2) [1, 4]. The capsule endoscopic report should include the final diagnosis based on the capsule endoscopic finding, indication, and medical history. Consequently, not all images have clinical meaning, so the final diagnosis should be determined based on the clinical findings and capsule endoscopic findings.

Closing Remarks

The final diagnosis of capsule endoscopy should be determined after comprehensive review of the capsule endoscopic findings and patient's clinical information. However, standard terminology is

Table 2 Major and minor diagnoses

Major diagnosis	Normal Angioectasia Erosion Ulcer Crohn's disease Celiac disease NSAID enteropathy Tumor (benign or malignancy) Bleeding of unknown origin
Minor diagnosis	Diverticulum Tropical sprue Parasite Hemobilia Phlebectasia Varices Intestinal lymphangiectasia Ischemic enteritis Vasculitis Radiation enteritis Posttransplant lymphoproliferative disease Graft-versus-host disease Enteropathy (erosive, erythematous, congestive, and hemorrhagic) Brunner's gland hyperplasia Lipoma Neuroendocrine tumor Melanoma GIST (gastrointestinal stromal tumor) Kaposi's sarcoma Lymphoma Polyps Juvenile polyposis Familial adenomatous polyposis Peutz-Jeghers syndrome

highly recommended to share the data generated by capsule endoscopic images accurately. This will require standardization of the terminology, dissemination, and training. This is ultimately expected to increase the clinical utility of capsule endoscopy and facilitate qualitative improvement.

References

1. Korman LY, Delvaux M, Gay G, et al. Capsule endoscopy structured terminology (CEST): proposal of a standardized and structured terminology for reporting capsule endoscopy procedures. Endoscopy. 2005;37:951–9.
2. Delvaux M, Crespi M, Armengol-Miro JR, et al. Minimal standard terminology for digestive endoscopy: results of prospective testing and validation in the GASTER project. Endoscopy. 2000;32:345–55.
3. Keum B. How to report the capsule endoscopy results. Korean J Gastrointestinal Endoscopy. 2010;40:228–33.
4. Gut Image Study Group, Lim YJ, Moon JS, Chang DK, Jang BI, Chun HJ, Choi M-G. Korean Society of Gastrointestinal Endoscopy (KSGE) guidelines for credentialing and granting privileges for capsule endoscopy. Korean J Gastrointestinal Endoscopy. 2008;37:393–402.
5. Fischer D, Schreiber R, Levi D, Eliakim R. Capsule endoscopy: the localization system. Gastrointest Endosc Clin N Am. 2004;14:25–31.